**3GPP TSG-CT WG1 Meeting #141eC1-23xxxx**

**Online 17– 21 April 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **54** | **CR** |  | **rev** | **1** | **Current version:** | **18.0.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

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|  |
| ***Title:***  | Encoding of IEs for link identifier update via 5G ProSe UE-to-UE relay UE |
|  |  |
| ***Source to WG:*** | InterDigital Inc. |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5G\_ProSe\_Ph2 |  | ***Date:*** | 2023-04-10 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-18 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | In the CR C1-230881, the 5G ProSe direct link identifier procedure was updated for unicast mode communication between 5G ProSe 5G ProSe end UEs via a 5G ProSe layer-3 UE-to-UE relay UE, and in C1-230890 the the 5G ProSe PC5 messages are update to align with the changes in 5G ProSe direct link identifier update procedure.Encoding of the messages was defined but the encoding of new IEs is yet to be specified. This CR provides the encoding of those IEs. |
|  |  |
| ***Summary of change:*** | Encoding of new IEs in - PROSE DIRECT LINK IDENTIFIER UPDATE REQUEST message is defined. |
|  |  |
| ***Consequences if not approved:*** | PROSE DIRECT LINK IDENTIFIER UPDATE REQUEST message can not be implemented. |
|  |  |
| ***Clauses affected:*** | 11.3.x (new), 11.3.y (new), 11.3.z (new) |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **x** |  Other core specifications  | TS/TR ... CR ... |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\*\*\* Start change \*\*\*\*\*

### 11.3.x IP address/prefix needed indication

The purpose of the IP address/prefix needed indication information element is to indicate that a new IP address/prefix to be allocated by the 5G ProSe layer-3 UE-to-UE relay UE.

The IP address/prefix needed indication information element is a type 1 information element, with a length of 1 octets.

The IP address/prefix needed indication information element is coded as shown in figure 11.3.x.1 and table 11.3.x.1.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| IP address/prefix needed indication IEI | IP address/prefix needed indication contents | octet 1 |

Figure 11.3.x.1: IP address/prefix needed indication information element

Table 11.3.x.1: IP address/prefix needed indication information element

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| IP address/prefix needed indication contents (octet 1)Bit

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 4 | 3 | 2 | 1 |  |
| 0 | 0 | 0 | 0 | Reserved |
| 0 | 0 | 0 | 1 | IP address/prefix needs to be changed and allocated by the 5G ProSe UE-to-UE relay UE |

All other values are spare and shall be coded as zero. |
|  |

\*\*\*\*\* Second change \*\*\*\*\*

### 11.3.y Peer update indication

The purpose of the Peer update indication information element is to indicate that IP address/prefix of the initiating UE needs to be sent to the peer UE(s).

The peer-update indication information element is a type 1 information element, with a length of 1 octets.

The peer-update indication information element is coded as shown in figure 11.3.y.1 and table 11.3.y.1.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Peer update indication IEI | Peer update indication contents | octet 1 |

Figure 11.3.24.1: Peer update indication information element

Table 11.3.24.1: Peer update indication information element

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Re-authentication indication contents (octet 2)Bit

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 4 | 3 | 2 | 1 |  |
| 0 | 0 | 0 | 0 | Reserved |
| 0 | 0 | 0 | 1 | Peer UE(s) need to be updated with initiating UE’s new IP addr |

All other values are spare and shall be coded as zero. |
|  |

\*\*\*\*\* Third change \*\*\*\*\*

### 11.3.z List of Link local IPv6 address

The purpose of the list of Link local IPv6 addresses information element is to indicate a list of Link local IPv6 addresses.

The list of Link local IPv6 addresses is a type 4 information element with a minimum length of 19 octets. The maximum length for the information element is 257 octets.

The list of Link local IPv6 addresses information element is coded as shown in figure 11.3.z.1. Each Link local IPv6 address is coded as shown in Figure 11.3.z.1.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| List of Link local IPv6 addresses IEI | octet 1 |
| Length of list of Link local IPv6 addresses contents | octet 2 |
| Link local IPv6 address 1 | octet 3octet u |
| Link local IPv6 address 2 | octet u+1\*octet v\* |
| ... | octet v+1\*octet w\* |
| Link local IPv6 address n | octet w+1\*octet x\* |

Figure 11.3.z.1: List of Link local IPv6 addresses information element (Encoding of Link local IPv6 address is defined in clause 11.3.7)

\*\*\*\*\* Fourth change \*\*\*\*\*

#### 10.3.18.1 Message definition

This message is sent by a UE to another peer UE to initiate the direct link identifier update procedure. See table 10.3.18.1.1.

Message type: PROSE DIRECT LINK IDENTIFIER UPDATE REQUEST

Significance: dual

Direction: UE to peer UE

Table 10.3.18.1.1: PROSE DIRECT LINK IDENTIFIER UPDATE REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | PROSE DIRECT LINK IDENTIFIER UPDATE REQUEST message identity | ProSe PC5 signalling message type11.3.1 | M | V | 1 |
|  | Sequence number | Sequence number11.3.2 | M | V | 1 |
|  | MSB of KNRP-sess ID | MSB of KNRP-sess ID11.3.13 | M | V | 1 |
|  | Source layer-2 ID | Layer-2 ID11.3.25 | M | V | 3 |
| 27 | Source user info | Application layer ID11.3.4 | O | TLV | 3-257 |
| 60 | Source link local IPv6 address | Link local IPv6 address11.3.7 | O | TV | 17 |
| xx | IP address/prefix needed indication | IP address/prefix needed indication11.3.x | O | TV | 1 |
| xx | Peer update indication | Peer update indication11.3.y | O | TV | 1 |
| xx | List of target End UE user info | Target Application layer ID11.3.4 | O | TLV | 3-257 |
| xx | List of target End UE IP address/prefix | List of Link local IPv6 addresses11.3.z | O | TLV | 17-257 |

\*\*\*\*\* End of changes \*\*\*\*\*